

HYPSELOGNATHUS HORRIDUS, A NEW SPECIES OF PIPEFISH (SYNGNATHIDAE) FROM SOUTH AUSTRALIA

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Abstract.—An unusual pipefish, characterized by spinigerous head and body surfaces, absence of scutella, and presence of caudal fin and caudal brood pouch, is described from depths of 42–55 m off Anxious Bay, South Australia. Provisionally referred to the Australian endemic genus *Hypselognathus*, this species differs from its only congener (*H. rostratus*) in having spiny rather than essentially smooth head and body surfaces, in lacking scutella, in having more total subdorsal rings (11–11.5 versus 8–9.5) and a higher HL in SL ratio (8.0–9.0 versus 5.9–6.6), as well as in other morphological, proportional and meristic features.

Current studies on Australian pipefishes indicate the presence of about 90 valid species and several yet undescribed forms. Most of the latter have similar or closely related congeners and descriptions are delayed pending collection of more comparative material. Specimens reported here differ so strikingly from all known pipefishes that we see no need for postponing their description. The occurrence of this species and the recently described *Kimblaeus bassensis* Dawson (1980) in moderate depths (40–70 m) of southern Australian coasts suggests that continued sampling in this region may educe further additions to the pipefish fauna of Australia.

Measurements are, in part, referred to standard length (SL) and head length (HL); counts of the holotype are marked *; as employed here, the term “venter” refers to the ventral surface of head or body; other methods are those of Dawson (1977). Specimens are deposited in the South Australian Museum (SAM) and Gulf Coast Research Laboratory Museum (GCRL). Drawings are by Mrs. Yasue Matthews (GCRL).

Hypselognathus horridus, new species

Figs. 1 and 2

Holotype.—SAM F.4676 (154.0 mm SL, adult male), South Australia, Great Australian Bight, off Anxious Bay, 54.9 m (30 fm.), trawl, 25 Feb. 1981, P. C. Halsey.

Paratypes.—GCRL 18057 (226.5 mm SL, adult female), South Australia, Great Australian Bight, ca. 32°24'S, 133°30'E, 42 m, trawl, 5 May 1973, SA Fish. Dept. SAM F.4681 (228.0 mm SL, adult female), South Australia, Great Australian Bight, ca. 33°24'S, 134°37'E, 14.8 km S of Point Weyland, 54.9 m, trawl, 18 Sept. 1981, Karl Olsen.

Diagnosis.—Head and body surfaces (except membranes) spinigerous, scutella absent, HL 8.0–9.0 in SL, snout length 1.6–1.8 in HL, total rings 70–72.

Description.—Rings 27* + 43–45*, subdorsal rings 6.75–6.0* + 4.25–5.5* = 11.0–11.5*, dorsal-fin rays 31*, pectoral-fin rays 10* (2), 11 (2), 12 (2), anal-fin rays 3*, caudal-fin rays 10*. Measurements of holotype are followed (in paren-

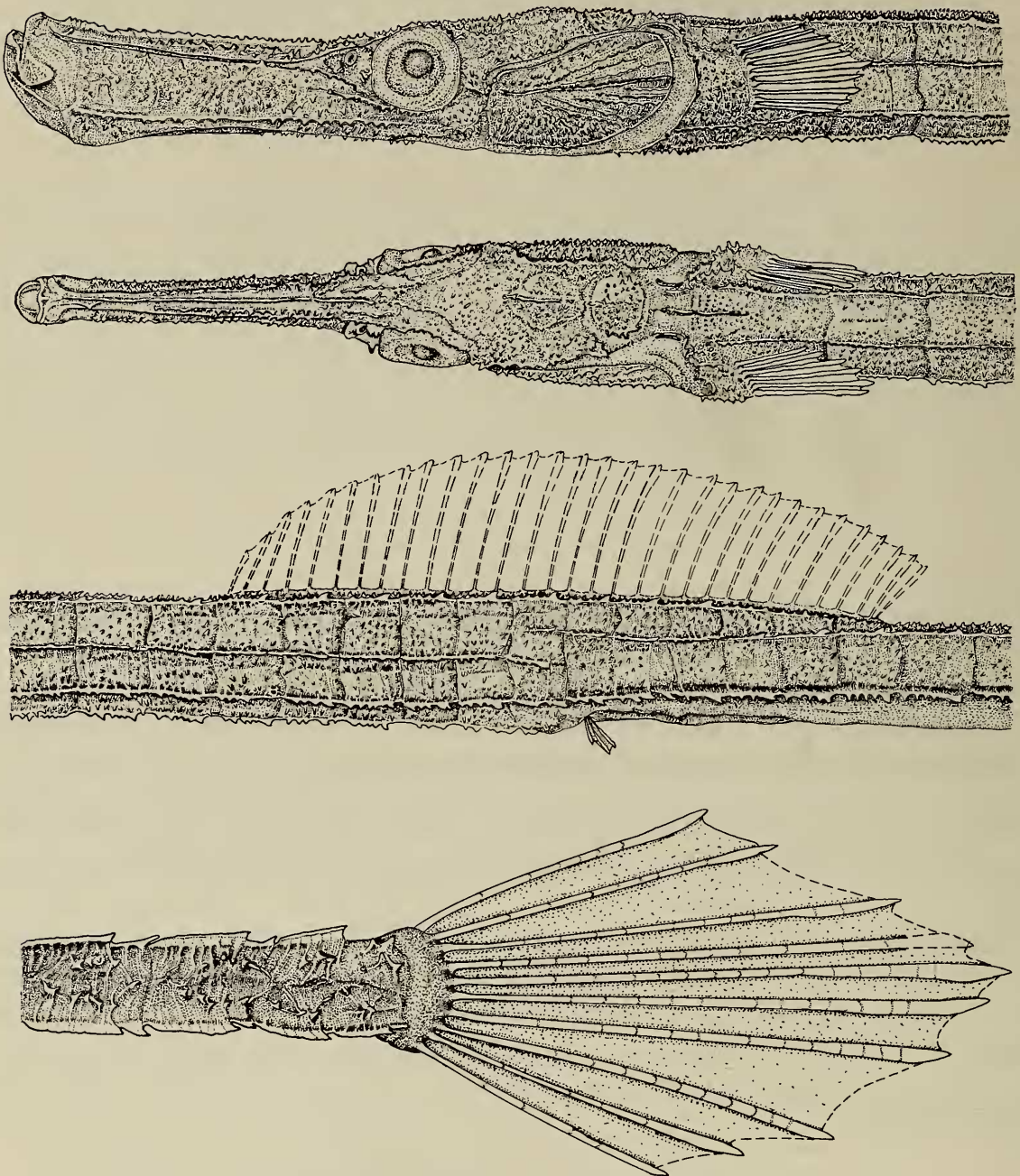


Fig. 1. *Hypselognathus horridus*. Upper pair: Lateral and dorsal aspects of head and anterior trunk rings. Lower pair, Top: Posterior trunk and anterior tail rings, together with dorsal and anal fins and anterior portion of brood pouch. Bottom: Posterior tail rings and caudal fin. From holotype (SAM F.4676).

theses) by those of shorter and longer paratypes, respectively: SL 154.0 (226.5, 228), HL 17.1 (28.5, 28.4), snout length 9.3 (17.3, 17.3), least snout depth 2.1 (3.4, 3.2), length of dorsal-fin base 16.4 (24.3, 24.9), anal ring depth 2.6 (4.5, 4.2), trunk depth 3.2 (6.8, —), pectoral-fin length 3.2 (4.2, —), length of pectoral-fin base 1.6 (2.9, 2.8), caudal-fin length 7.3 (—, 11.1).

Median dorsal snout ridge (Fig. 1) low, irregularly denticulate to spinulose, ending just before vertical through anterior margin of orbit, not confluent with anterior continuations of supraorbital ridges; snout compressed laterally, its least depth 4.4–5.4 in snout length; nares 2-pored bilaterally, the anterior pore on a

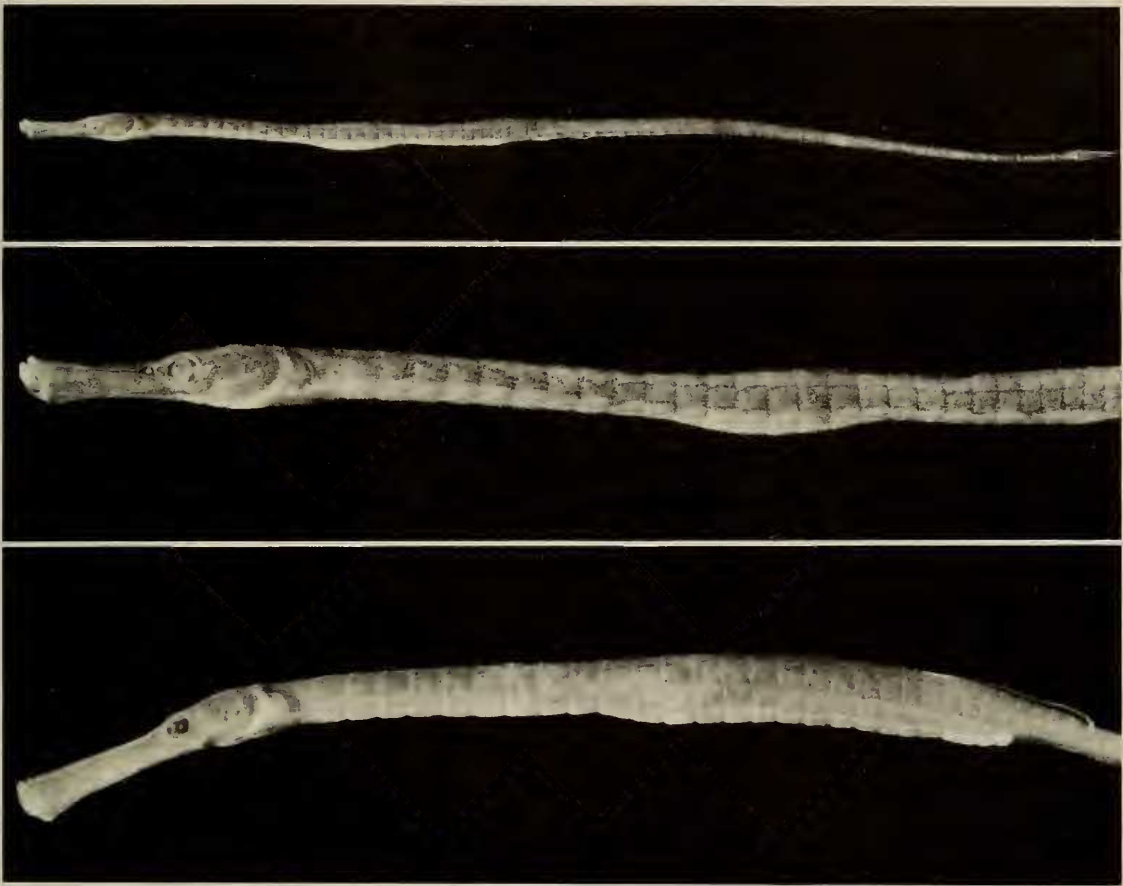


Fig. 2. *Hypselognathus horridus*. Top and middle: SAM F.4676 (154 mm SL, male, holotype). Bottom: GCRL 18057 (226.5 mm SL, female, paratype).

short tubule; preorbital bone rather narrow, its width less than diameter of pupil. Opercle with radiating denticulate striae, none clearly enlarged or ridge-like; dorsal margins of orbits elevated slightly; interorbital essentially flat, a little depressed between dorsal margins of orbits; dorsum of head more or less rounded behind orbits; nuchal ridge obsolete; prenuchal and frontal ridges vestigial; pectoral-fin base protruding a little laterad, without obvious ridges.

Superior trunk and tail ridges discontinuous near rear of dorsal-fin base; lateral trunk and tail ridges discontinuous, terminating on last trunk ring; inferior trunk and tail ridges continuous (Fig. 1). Principal body ridges distinct, somewhat elevated and angled a little laterad on posterior 16–20 tail rings; ridge margins irregularly denticulate, usually with a slightly enlarged hook-like spine on posterior third of each ring; anterior and posterior margins of rings straight to irregularly emarginate; scutella absent. Most surfaces (except eye, gill membranes, fins and pouch folds) more or less covered with minute spines, their distribution irregular but numbers somewhat reduced on posterior tail rings. Dorsum a little convex on trunk and anterior half of tail, gradually becoming flat and depressed between somewhat elevated superior ridges on posterior tail rings; venter of trunk V-shaped, the median ridge not clearly enlarged; 12th–19th trunk rings of holotype swollen or enlarged in dorsal and lateral aspects (Fig. 2); 11th–27th trunk rings of adult females deeper (ca. 22%) than preceding rings; sides and venter of posterior tail rings more or less flat, depressed distally between elevated principal ridges.

Dorsal-fin base not elevated; superior trunk ridge not arched strongly dorsad below dorsal-fin base; pectoral fin more or less rounded; caudal-fin membranes broad above and below, narrower between the long median fin-rays; tips of caudal-fin rays somewhat flattened and spatulate.

Brood pouch developed below the anterior 18 tail rings of the holotype; pouch plates moderately enlarged, angled somewhat laterad; membranous pouch folds present. Pouch closure, uncertain due to absence of eggs or larvae, probably the everted type of Herald (1959).

Color of holotype in alcohol mainly grayish, shading to brown on distal half of tail. Sides and dorsum of head and body, and venter of tail behind brood pouch, peppered with brown to black microchromatophores, somewhat larger on sides and most abundant on posterior half of tail; anterior and posterior margins of rings often with fine dark edging. Lower portions of gill membranes, gular membrane, and venter of trunk mainly pale. Brood-pouch folds pale, with moderately broad, irregular, brownish shading along mesial margins. Caudal-fin rays largely brownish, the membranes shaded diffusely with brown; other fins hyaline. Coloration similar in a recently preserved female paratype (SAM F.4681) but the venter of the deepened posterior portion of the trunk is shaded with pink.

Etymology.—Named *horridus*, from the Latin, meaning bristly or rough.

Relationships.—The combination of spinigerous surfaces, absence of scutella, presence of caudal fin and a brood pouch, with plates and folds, located under the tail distinguishes the species described here from all known pipefishes. Its relationships are unclear and it may eventually warrant separate generic treatment. In general morphology, this fish appears most closely related to the poorly defined *Hypselognathus* Whitley (1948) and it is provisionally referred to this otherwise monotypic, Australian endemic, genus (type species *Histiogamphelus rostratus* Waite and Hale, 1921) until additional material is available for study.

Comparisons.—*Hypselognathus rostratus* and *H. horridus* agree in the configuration of principal body ridges (Fig. 1), in the presence of dorsal, pectoral, anal and 10-rayed caudal fins, and both share an elongate, laterally compressed, snout. In general agreement with *H. horridus*, specimens of *H. rostratus* may have a small spine or vestige thereof on margins of principal ridges of trunk rings, principal ridges of the posterior tail rings are somewhat elevated and angled laterad, and some swollen trunk rings are typically present. However, *H. horridus* lacks the small round scutella present in *H. rostratus*, fails to have the supraorbital ridges confluent with the median dorsal snout ridge (confluent in *rostratus*), and has spinigerous head and inter-ridge body surfaces (smooth in *rostratus*). Compared to 8 specimens of *H. rostratus* (152–305 mm SL), *H. horridus* has more trunk rings and total rings (respectively, 27 and 70–72 versus 24–25 and 65–69), fewer pectoral-fin rays (10–12 versus 12–14), more subdorsal trunk rings and total subdorsal rings (respectively, 6.75–6 and 11–11.5 versus 2.5–0.75 and 8–9.5), a higher HL in SL ratio (8.0–9.0 versus 5.9–6.6), and a lower snout depth in snout length ratio (4.4–5.4 versus 6.2–13.0).

Among other pipefishes, spinigerous head and body surfaces, somewhat similar to those of *H. horridus*, occur only in some species of *Solegnathus* Swainson (e.g., *S. spinosissimus* Günther). However, species of *Solegnathus* differ from *Hypselognathus horridus* in lacking the caudal fin and brood-pouch plates and folds and in having well-developed scutella.

Remarks.—Each of the three known specimens of *Hypselognathus horridus* was taken with one or more specimens of *Solegnathus robustus* McCulloch.

Literature Cited

- Dawson, C. E. 1977. Review of the pipefish genus *Corythoichthys* with description of three new species.—*Copeia* 1977:295–338.
- . 1980. *Kimblaeus*, a new pipefish genus (Syngnathiformes: Syngnathidae) from Australia, with a key to genera of pipefishes with continuous superior ridges.—*Australian Journal of Marine and Freshwater Research* 31:517–523.
- Herald, E. S. 1959. From pipefish to seahorse—a study of phylogenetic relationships.—*Proceedings of the California Academy of Sciences* 42:181–227.
- Waite, E. R., and H. M. Hale. 1921. Review of the lophobranchiate fishes (Pipe-fishes and Seahorses) of South Australia.—*Records of the South Australian Museum* 1:293–324.
- Whitley, G. P. 1948. Studies in ichthyology. No. 13.—*Records of the Australian Museum* 22:70–94.

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